UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF TEXAS
MIDLAND/ODESSA DIVISION

COBBLESTONE WIRELESS, LLC,

      Plaintiff,

          v.

APPLE INC.,

      Defendant.

NO. 7:24-cv-00232-ADA

JURY TRIAL DEMANDED

DEFENDANT APPLE INC.'S
OPENING CLAIM CONSTRUCTION BRIEF

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TABLE OF ABBREVIATIONS

'802 patent	U.S. Patent No. 7,924,802 (Exhibit A)
'347 patent	U.S. Patent No. 8,891,347 (Exhibit B)
Hochwald	Declaration of Bertrand Hochwald, Ph.D. in support of Apple's Claim Constructions
POSITA	Person of ordinary skill in the art

Pursuant to the Court's January 21, 2025 Scheduling Order (Dkt. No. 23, "Scheduling Order"), Defendant Apple Inc. ("Apple") respectfully submits its Opening Claim Construction Brief. This Brief is supported by the declaration of Dr. Bertrand Hochwald. Hochwald, ¶¶1-25. Apple's proposed constructions are consistent with the intrinsic record and controlling precedent, along with relevant extrinsic evidence. Plaintiff Cobblestone Wireless, LLC's ("Cobblestone") proposed constructions and arguments, in contrast, contravene established principles of claim construction, ignore clear and unmistakable disavowals of claim scope, are inconsistent with the intrinsic record, and ignore prior claim construction decisions addressing certain of these terms in the same patents. Apple's constructions should be adopted.

I.   ARGUMENT REGARDING DISPUTED TERMS

A.   "[first/second] center frequency" ('802 patent, claims 1–2, 10)

Cobblestone's Proposal	Apple's Proposal
"the frequency of the carrier that the baseband signal is upconverted to"	Plain and ordinary meaning

The terms "first center frequency" and "second center frequency" are comprised of terms with readily apparent meanings. The parties agree that "frequency" needs no construction, as Cobblestone's proposed construction repeats the term. And there can be no reasonable dispute that "center frequency" is well-understood. *See* Hochwald, ¶¶34–36. For example, the Federal Communications Commission defines "center frequency" consistent with its plain meaning as understood by a POSITA—"The frequency of the middle of the bandwidth of a channel." 47 C.F.R. § 22.99. Hochwald, ¶34. The Eastern District of Texas agreed that plain and ordinary meaning applies, rejecting Cobblestone's proposal to construe this term. *See* Claim Construction Order at 8, 12, *Cobblestone Wireless, LLC v. Cisco Sys., Inc.*, No. 2:23-cv-00454-JRG-RSP (E.D.

Tex. Sep. 29, 2023), Dkt. 79 (Exhibit C). The plain and ordinary meaning should govern. Hochwald, ¶¶34–36; *see also id.*, ¶¶26-33.

Claim terms "are generally given their ordinary and customary meaning." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (citation omitted); *Aventis Pharms. Inc. v. Amino Chems. Ltd.*, 715 F.3d 1363, 1373 (Fed. Cir. 2013) ("There is a heavy presumption that claim terms are to be given their ordinary and customary meaning" (citing *Phillips*, 415 F.3d at 1312)). The two exceptions to this rule are "1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of a claim term either in the specification or during prosecution." *Thorner v. Sony Comput. Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012).

The first exception does not apply. "To act as its own lexicographer, a patentee must 'clearly set forth a definition of the disputed claim term' other than its plain and ordinary meaning." *Thorner*, 669 F.3d at 1365 (quoting *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). The definition may be set out expressly or implicitly, but any implied redefinition "must be so clear that it equates to an explicit one. In other words, a person of ordinary skill in the art would have to read the specification and conclude that the applicant . . . has acted as its own lexicographer." *Id.* at 1368. Nowhere does the '802 patent define "center frequency" as "the frequency of the carrier that a baseband signal is up-converted to" as proposed by Cobblestone. *See generally* '802 patent. In fact, the '802 patent does not even use the term "baseband signal." Hochwald, ¶35.

The second exception also does not apply. The specification does not disavow or disclaim claim scope relating to "center frequency." And during prosecution, the patentee did not make

any remarks concerning claim scope of "center frequency." *See generally* '802 patent File History. Hochwald, ¶35.

The patentee, moreover, incorporated up-converting in some claims with "center frequency," yet chose to omit that concept in other claims reciting "center frequency," further confirming that the patentee did not *require* "center frequency" to include up-conversion in every instance. *See Phillips*, 415 F.3d at 1314 (noting that "the usage of a term in one claim can often illuminate the meaning of the same term in other claims"). For example, claim 10 recites "up-converting the first analog signal to a first RF center frequency to produce a first up-converted analog signal" and "up-converting the second analog signal to a second RF center frequency to produce a second up-converted analog signal." '802 patent, claim 10. Claims 1-4 and 6-9, in contrast, recite "a first frequency range having a first center frequency" and "a second frequency range having a second center frequency" without requiring up-conversion. If "center frequency" meant the frequency of the carrier that the baseband signal is up-converted to, then it would have been unnecessary to explicitly specify in claim 10 that a center frequency is the result of "up-converting" an analog signal. [1] '802 patent, claim 10. *See, e.g.*, *Phillips*, 415 F.3d at 1314 ("[T]he claim in this case refers to 'steel baffles,' which strongly implies that the term 'baffles' does not inherently mean objects made of steel."); *Thorner*, 669 F.3d at 1368 ("If the applicant had redefined the term 'attached' to mean only 'attached to an outer surface,' then it would have been unnecessary to specify that the attachment was 'to [an] outer surface' in the specification." (alteration in original)). Cobblestone's construction here ignores claim 10 and amounts to an

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[1] The *Cisco* Court similarly recognized that specifying "up-converted frequency ranges" in claim 10 "strongly implies a 'frequency range' is not inherently up-converted, even in the context of [the '802 patent]," and "undercuts any notion the applicants *intended* to redefine the 'center frequency' which is a requirement of lexicography." Ex. C at 9–10 (citations omitted).

improper attempt to import limitations from the specification into the claims. *See Thorner*, 669 F.3d at 1366 (holding that even where the specification embodiments "contain a particular limitation," "[w]e do not read limitations from the specification into claims").

Because the terms "first center frequency" and "second center frequency" are readily understandable, the patentee did not act as a lexicographer or disclaim claim scope, and Cobblestone's proposed constructions would incorporate unclaimed limitations into the claims, the Court should give these terms their plain and ordinary meaning. Hochwald, ¶36.

B.   "predistorted" ('347 patent, claim 19)

Cobblestone's Proposal	Apple's Proposal
Plain and ordinary meaning, which excludes distortion after transmission	"distorted before transmission, not including precoding using a codebook"

The parties' dispute: (1) which time period should be the focus of the construction (i.e., before or after transmission) and (2) whether "predistorted" can include precoding using a codebook. Apple's proposed construction properly focuses on the time period before transmission and correctly excludes precoding using a codebook based on the express disclaimer included in the '347 patent's specification. Hochwald, ¶45; *see also id.* ¶¶37-44.

As an initial matter, the parties' constructions focus on different time periods. Consistent with the well-understood meaning of the prefix "pre-" as meaning "before" or "prior to," Apple focuses properly on distortion ***before*** transmission. The '347 patent uses "pre-" consistent with this well-understood meaning. The '347 patent, for example, states, that "unlike the equalization technique which corrects the distortion at the receiver 150 ***after*** receiving the signals, the user focusing technique adds pseudo 'distortion' ***before*** the signals are transmitted at the transmitter 110. These ***'pre-distorted'*** signals are then transmitted in such a way that the signal distortion can be successfully removed while propagating." '347 patent, 7:64-8:3 (emphasis added); *see also id*.

at 1:58-61, 2:6-10, 22-25 (disclosing that signals are distorted before they are transmitted). And while Cobblestone purports to construe the term according to its plain and ordinary meaning, its construction ignores the plain meaning of "pre-" and focuses improperly on whether there is distortion *after* transmission. Because Cobblestone's construction focuses on the post-transmission period, it does not expressly require any distortion before transmission. Moreover, the claim is silent about what happens to the claimed signal after transmission, and yet Cobblestone's proposed construction disclaims certain post-transmission functionality (such as an embodiment in which some distortion occurs both before and after transmission), even though that is a disclaimer that is unsupported by the intrinsic record. *See Imaginal Systematic, LLC v. Leggett & Platt, Inc.*, 805 F.3d 1102, 1109-1111 (Fed. Cir. 2015) (rejecting construction that disclaimed functionality when that functionality was not disclaimed in intrinsic record). The Court should, consistent with plain meaning of "pre-" and as Apple has done, require distortion before transmission. Hochwald, ¶46.

Apple's construction also properly excludes precoding using a codebook from the construction of "predistortion" based on an express disclaimer in the specification. The '347 patent describes obtaining "path parameter information" such as "the delay τ, the Doppler frequency u, direction of arrival Ω_1, [or] direction of departure Ω_2" of a given propagation channel, which are then provided back to the transmitter and used by the transmitter to "predistort[]" signals before subsequent transmission in a way that cancels out the effect of the channel. *See* '347 patent, Fig. 4, 7:63-8:16, 9:1-14, 9:49-58. Thus, the transmitter is predistorting the signal to cancel out the distortion and interference that the signal will experience when it is transmitted along the path. The result, according to the '347 patent, is a significant reduction in interference. *See* '347 patent, 3:58-67, 14:21-24. Hochwald, ¶47.

The '347 patent also explains explicitly what "predistorted" signals do not include. *See, e.g.*, '347, 10:54-12:53 (explaining the differences between the disclosed "pre-distortion" techniques and pre-existing "[j]oint-[p]rocessing," "[p]recoding," "spatial division multiplexing access," "[m]ultipath-[b]ased [c]hannel [s]imulation," and "[p]re-[e]qualization" techniques). As is relevant here, the '347 specification explicitly states that ***predistortion*** is distinct from ***precoding*** using a "codebook."   For example, the '347 specification in a section titled "Comparison to Precoding Techniques" explains that the predistortion techniques described in the '347 patent and used by the alleged invention differ significantly from "conventional precoding techniques" that use a codebook:

> B. Comparison to Precoding Techniques
> The systems and methods described herein can make use of ***the concept of "pre-distortion," which has significant difference from the conventional precoding techniques. The latter can make use of simplified representations of [the] channel, e.g. in terms of code-book, while the system and methods described above make use of the parameters of the propagation channel***, e.g. the delay, Doppler frequencies, directions of departure and directions of arrival. This full-dimensional parametric description of the channel can be much more accurate than using the codebooks.

'347 patent, 11:59-12:2 (emphasis added). The patent also explains why the system disclosed in the '347 patent does not use precoding: "The interference cancellation is much more efficient by using the user-focusing [i.e., the pre-distorting systems and methods of the '347 patent] than the conventional methods relying on e.g. the precoding techniques." *Id.* at 14:21-24; *see also* 3:43-45. Hochwald, ¶¶48-49.

As the Federal Circuit has long held, "[w]here the specification makes clear that the invention does not include a particular feature, that feature is deemed to be outside the reach of the claims of the patent." *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed. Cir. 2001). Here, because the '347 specification—in a section that is focused entirely

on comparing predistortion and precoding—makes clear that "pre-distortion" does not include

precoding techniques using a codebook, that feature falls outside the reach of the '347 patent's

claims. *See, e.g.*, *id.* at 1341; *David Netzer Consulting Eng'r LLC v. Shell Oil Co.*, 824 F.3d 989,

995 (Fed. Cir. 2016) (finding disclaimer when "the patentee distinguished conventional extraction

from fractionation in the specification, indicating that 'fractionation' does not include conventional

extraction"); *Gaus v. Conair Corp.*, 363 F.3d 1284, 1291 (Fed. Cir. 2004) (finding disclaimer when

"the specification . . . criticized prior art in which the protective device relied on the fluid coming

in contact with the voltage-carrying portions of the system"). Hochwald, ¶50.

Apple's proposed construction accurately reflects the meaning of "pre" in predistortion and

properly accounts for the "precoding" disclaimer in the specification. Cobblestone's plain and ordinary

meaning construction, in contrast, focuses on the wrong time period and improperly recaptures the

disclaimed subject matter. *See SciMed*, 242 F.3d at 1341. Apple's construction should be adopted.

Hochwald, ¶51.

C.   "path parameter information" ('347 patent, claims 19–22)

Cobblestone's Proposal	Apple's Proposal
Plain and ordinary meaning	"estimated parameters of the propagation path, excluding simplified representations of a channel (e.g. in terms of a codebook)"

The parties dispute whether "path parameter information" can include simplified

representations of a channel such as representing a channel in terms of a codebook. Apple's

proposed construction properly clarifies that the claimed "path parameter information" excludes

simplified representations of a channel, such as representing a channel in terms of a codebook.

Hochwald, ¶52.

The term "path propagation information" does not have a well understood meaning to a

POSITA. *See* Hochwald, ¶53. In the context of the '347 patent, "path parameter information" is

properly understood as the estimated parameters of the propagation path. This is consistent with the claim language, which requires the path propagation information to be (1) based on an estimation and (2) specific to a propagation path. In particular, claim 19 recites "performing a channel estimation based on the first signal to obtain path parameter information of the first propagation path." '347 patent, claim 19. Hochwald, ¶¶53-54.

The specification also teaches that "path parameter information" is the "estimated parameters of the propagation path." For example, the patent explains that a "channel *estimation* of a first signal is performed so as to obtain *path parameter information* of the *propagation path*," such as "estimates of the delay τ, the Doppler frequency u, direction of arrival Ω_1, direction of departure Ω_2, and complex amplitude α for each of the propagation paths." '347 patent, 8:4-16 (emphasis added). As discussed above, these estimated parameters of the propagation path may then be used by a transmitter, "which pre-distorts the transmitted signals in such a way that the channel's effect is automatically equalized during the propagation."   '347 patent, 11:3-12. Hochwald, ¶55.

Similar to the term "predistorted," the '347 patent explains both what "path parameter information" includes and what it does not. Specifically, in the same way that the term "predistorted" does not include precoding techniques, the '347 specification makes clear that "path parameter information" does not include simplified representations of the channel, and further distinguishes and disparages the use of codebooks, noting that the parametric description of the channel—i.e., the path parameter information—"can be much more accurate than using the codebooks":

> B. Comparison to Precoding Techniques
> The systems and methods described herein can make use of the concept of "pre-distortion," which has significant difference from the conventional precoding techniques. ***The latter can make use of simplified representations of [the] channel,***

> *e.g. in terms of code-book, while the system and methods described above make use of the parameters of the propagation channel*, e.g. the delay, Doppler frequencies, directions of departure and directions of arrival. ***This full-dimensional parametric description of the channel can be much more accurate than using the codebooks***.

'347 patent, 11:59-12:2 (emphasis added). The use of "simplified representations of [the] channel," such as those that represent the channel in terms of a codebook, are a conventional precoding technique not used in the purported invention of the '347 patent. *See* Hochwald, ¶56 (citing '347 patent, 11:59-67). Instead, the purported invention uses path parameter information that includes the actual parameters of the channel. *Id*. And, again, the '347 patent explains that interference cancellation is "much more efficient" using path parameter information instead of conventional precoding techniques. '347, 14:21-24. Hochwald, ¶56.

The '347 patent, in fact, explicitly states that "the systems and methods described herein make use of the parameters of propagation [i.e., path parameter information] ***instead of the simplified channel status information***." '347, 14:18-24 (emphasis added). A POSITA would have understood that "simplified channel status information" is the same as "simplified representations of the channel," and would include codebook information. *See* Hochwald, ¶57. Because the '347 patent states that path parameter information does not include simplified representations of a channel such as those that represent the channel in terms of a codebook, that subject matter is disclaimed and falls "outside the reach of the claims of the patent." *SciMed*, 242 F.3d at 1341; *see also David Netzer Consulting*, 824 F.3d at 995; *Gaus*, 363 F.3d at 1291. Hochwald, ¶57.

Apple's construction is consistent with the use of "path parameter information" in the '347 specification, including the explicit exclusion of simplified representations of the channel such as those that represent the channel in terms of a codebook. Cobblestone's "plain and ordinary

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meaning" construction improperly recaptures the disclaimed subject matter. *See SciMed*, 242 F.3d

at 1341. Apple's construction should be adopted. Hochwald, ¶58.

II.   CONCLUSION

Apple's proposed constructions are consistent with the intrinsic and extrinsic records.

Accordingly, Apple's proposed constructions should be adopted.

Dated: May 9, 2025

Respectfully submitted,

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<u>CERTIFICATE OF SERVICE</u>

The undersigned hereby certifies a true-and-correct copy of the foregoing document was served via the Court's CM/ECF system on all counsel of record on this May 9, 2025.

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